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Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters et al. (US 6,090,860) in view of Shiiki et al. (US 6,673,403) and Gordon III et al. (US 5,594,076).

Regarding claims 1 and 2, Peters teaches a method of recycling a laminate shaped product including breaking a shaped structure (column 5, lines 9-12) having a laminate structure

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including at least one barrier layer and a principal resin layer (column 3, lines 5-17), storing the broken pieces in a moisturizing environment to adjust the moisture content (column 5, lines 14-16), and washing the broken pieces with alkaline water to remove the barrier layer (column 7, lines 7-36) and recovering the principal resin (column 6, lines 9-11). Peters teaches using a gas barrier layer but does not explicitly teach the barrier layer is aliphatic polyester resin. Shiiki, however, teaches a known gas barrier layer is polyglycolic acid (column 4, lines 14-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Peters to use the barrier of Shiiki because substitution on known barrier layers is within routine skill of one in the art (MPEP 2144.06). Peters teaches storing the broken pieces in a moisturizing environment, but does not explicitly teach the specific moisture content of the resin. It would have been obvious, however, to modify the process of Peters to adjust the moisture content of the barrier layer resin to 0.1 wt. % because it has been held that optimization of a result effective variable is within routine skill of one in the art (MPEP 2144.05). Moisture content is a result effective variable because the yield of the hydrolysis reaction is dependent on the amount of water contained in the polymer. The aliphatic polyester is inherently separated by hydrolysis because aliphatic polyesters degrade by hydrolysis in basic solutions (column 1, lines 60-62 of Gordon).

Regarding claim 3, Peters teaches immersion in water (column 5, lines 15-17).

Regarding claims 4 and 5, Peters teaches washing the broken pieces with 1-3% caustic soda (sodium hydroxide) at 70-98°C (column 8, lines 18-23; column 13, lines 10-11).

Regarding claim 6, Peters does not explicitly teach using alkaline water containing at least 1 equivalent with respect to the resin in the broken pieces. It would have been obvious,

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however, to modify the process of Peters to use at least 1 equivalent alkaline water to resin because it has been held that optimization of a result effective variable is within routine skill of one in the art (MPEP 2144.06).

Regarding claim 7, Peters teaches the alkaline water has a surfactant (column 8, line 64).

Regarding claim 8, Peters teaches using a gas barrier layer but does not explicitly teach the barrier layer is aliphatic polyester resin. Shiiki, however, teaches a known gas barrier layer is polyglycolic acid (column 4, lines 14-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Peters to use the barrier of Shiiki because substitution on known barrier layers is within routine skill of one in the art (MPEP 2144.06).

Regarding claim 9, Peters teaches the principal resin is PET (column 4, line 44).

Regarding claim 10, Peters does not explicitly teach the order of layer of the laminated article. It would have been obvious, however, to one of ordinary skill in the art at the time of the invention to modify the process of Peters to have the principal resin/PGA/principal resin laminate because it has been held that rearrangement of process steps (lamination order) is within routine skill of one in the art (MPEP 2144.04).

Regarding claim 11, Peters teaches the barrier layered is colored (column 2, lines 56-59).

Response to Arguments

Applicant's arguments filed December 31, 2009 have been fully considered but they are not persuasive.

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Applicant argues that Peters teaches the gas barrier coating is physically separated from the base plastic, not chemically separated. The examiner disagrees. Peters teaches that the barrier coating is chemically separated by immersion into the separating composition (column 5, lines 19-30). The composition “loosens, lifts and ultimately separates the coating from the base plastic” (column 5, lines 55-57).

Applicant argues that the combined references do not teach removal of the aliphatic polyester resin layer by hydrolysis thereof. The examiner disagrees. The aliphatic polyester is inherently separated by hydrolysis because aliphatic polyesters degrade by hydrolysis in basic solutions (column 1, lines 60-62 of Gordon).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. PIERY whose telephone number is (571)270-5047. The examiner can normally be reached on M-Th 8:30-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael T Pery/
Examiner, Art Unit 1791

/Monica A Huson/
Primary Examiner, Art Unit 1791